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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/536,804 | 11/10/2005 | Magali Williamson | BJS-620-373 | 4496 |

23117 7590 07/01/2010

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| EXAMINER | |
|---|---|
| REDDIG, PETER J | |
| ART UNIT | PAPER NUMBER |
| 1642 | |
| MAIL DATE | DELIVERY MODE |
| 07/01/2010 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/536,804 | WILLIAMSON ET AL. | |
| | Examiner | Art Unit | |
| | PETER J. REDDIG | 1642 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *02/16/2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *106,109,111 and 115-118* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *106,109,111 and 115-118* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *02/16/2010*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 02/16/2010 has been entered.

Claims 106, 109, 111 and 115-118 are pending and under consideration. It is noted that the restriction between the species of plexinB1 mutations set forth on page 7 of the Requirement for Restriction/Election of 11/01/2007 is withdrawn.

### *Response to Arguments*

2. Applicant's arguments filed 12/21/2009 and the Declaration of B. J. Sadoff, filed 12/21/2009, with respect to the rejections of the Office Action of 09/25/2009 have been fully considered and are persuasive. The rejections and objections of the Office Action of 09/25/2009 have been withdrawn.

### *New Grounds of Objection/Rejection*

### *Claim Objections*

3. Claim 106 is objected to because of the following informalities: There is a space between the word "compound" and the comma on line 5. Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 106, 109, 111 and 115-118 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims encompass determining the expression of plexinB1 nucleic acid that comprises the plexinB1 coding sequence of AB007867.1 (SEQ ID NO:112) with at least one mutation in the coding region of the nucleic acid selected from the group consisting of C5059T, C5060T, G5074A, A5107G, A5359G, T5401A, G5452A, G5458A, C5468T, A5474G, A5596G, A5653G, C5662T, A5674G, C5713T, T5714C and C5980T. The claims are indefinite because nucleic acids "comprising the plexinB1 coding sequence of AB007867.1 (SEQ ID NO:112)" would be of different lengths and potentially have longer coding regions than AB007867.1 (SEQ ID NO:112), thus the position of the mutations are indefinite because they are relative to the start site of the comprising nucleic acid and the start site of the comprising nucleic acid is undefined. Amending the claim to clarify and limit the locations of the mutations to be relative to residue number 1 of AB007867.1 (SEQ ID NO: 112) would help to obviate this rejection.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 106, 109, 111 and 115-118 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method of identifying a compound as a putative anti-prostate cancer or anti-breast cancer agent, the method comprising; determining the expression of a plexinB1 nucleic acid in a cell or cell lysate in the presence of a test compound as compared with expression of the plexinB1 nucleic acid in the cell or the cell

lysate in the absence of the test compound, wherein said plexinB1 nucleic acid comprises AB007867.1 (SEQ ID NO:112) with at least one mutation in the coding region of the nucleic acid selected from the group consisting of C5059T, C5060T, G5074A, A5359G, T5401A, G5452A, G5458A, C5468T, A5474G, A5596G, A5653G, C5662T, A5674G, C5713T, T5714C and C5980T, wherein the mutations are numbered starting from residue 1 of AB007867.1 (SEQ ID NO:112) and; wherein a reduction in expression of the plexinB1 nucleic acid in the cell or cell lysate in the presence of the test compound as compared with expression of the plexinB1 nucleic acid in the cell or the cell lysate in the absence of the test compound identifies the test compound as a putative anti-prostate cancer or anti-breast cancer agent, *does not* reasonably provide enablement for a method of identifying a compound as a putative anti-prostate cancer or anti-breast cancer agent, the method comprising; determining the expression of a plexinB1 nucleic acid in a cell or cell lysate in the presence of a test compound as compared with expression of the plexinB1 nucleic acid in the cell or the cell lysate in the absence of the test compound, wherein said plexinB1 nucleic acid comprises the plexinB1 coding sequence of AB007867.1 (SEQ ID NO:112)with at least one mutation in the coding region of the nucleic acid selected from the group consisting of C5059T, C5060T, G5074A, **A5107G,** A5359G, T5401A, G5452A, G5458A, C5468T, A5474G, A5596G, A5653G, C5662T, A5674G, C5713T, T5714C and C5980T, and; wherein a reduction in expression of the plexinB1 nucleic acid in the cell or cell lysate in the presence of the test compound as compared with expression of the plexinB1 nucleic acid in the cell or the cell lysate in the absence of the test compound identifies the test compound as a putative anti-prostate cancer or anti-breast cancer agent. The specification does

not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims.

The factors to be considered in determining whether undue experimentation is required are summarized in *In re Wands* 858 F.2d 731, 8 USPQ2nd 1400 (Fed. Cir, 1988). The court in Wands states: "Whether undue experimentation is needed is not a single, simple factual determination, but rather is a conclusion reached by weighing many factual considerations." (Wands, 8 USPQ2d 1404). The factors to be considered in determining whether undue experimentation is required include: (1) the quantity of experimentation necessary, (2) the amount or direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims.

The claims are broadly drawn to a method of identifying a compound as a putative anti-prostate cancer or anti-breast cancer agent, the method comprising; determining the expression of a plexinB1 nucleic acid in a cell or cell lysate in the presence of a test compound as compared with expression of the plexinB1 nucleic acid in the cell or the cell lysate in the absence of the test compound, wherein said plexinB1 nucleic acid comprises the plexinB1 coding sequence of AB007867.1 (SEQ ID NO:112) with at least one mutation in the coding region of the nucleic acid selected from the group consisting of C5059T, C5060T, G5074A, A5107G, A5359G, T5401A, G5452A, G5458A, C5468T, A5474G, A5596G, A5653G, C5662T, A5674G, C5713T, T5714C and C5980T, and; wherein a reduction in expression of the plexinB1 nucleic acid in the cell or cell lysate in the presence of the test compound as compared with expression of the plexinB1 nucleic acid in the cell or the cell lysate in the absence of the test compound identifies

the test compound as a putative anti-prostate cancer or anti-breast cancer agent. The claims encompass a genus of mutations with varying locations because the relative location of the mutations is not limited to the first residue of AB007867.1 (SEQ ID NO: 112) and vary with the start site of the comprising nucleic acid.

The specification teaches that PlexinB1 has been shown to interact with a variety of factors, including semaphorin 4D, c-Met, neuropilins, active Rac1 and the guanine nucleotide exchange factors (GEFS), PDZ-RhoGEF and LARG). The specification teaches that despite these interactions, the exact function of plexinB1 is not yet known. See para. 0004 of the published application.

The specification teaches that 80 primary prostate tumors and 11 prostate cancers metastases were screened for mutation in the cytoplasmic domain of plexinB1. The specification teaches that the identified prostate cancer mutations were C5059T, C5060T, G5074A, A5359G, T5401A, C5468T, A5474G, A5596G, A5653G, C5662T, A5674G, C5713T, T5714C and C5980T. The specification teaches that the identified prostate cancer mutations were C5059T, C5060T, C5713T, G5452A, and G5458A. See para 0248-0270 of the published application and Figs. 3-5 and Tables 1.

One of skill in the art cannot extrapolate the teachings of the specification to enable the scope of the claims because the relative location of the mutations is not limited to the first residue of AB007867.1 (SEQ ID NO: 112) and vary with the start site of the comprising nucleic acid. Thus, the claims encompass mutations at sites that have not been demonstrated to be associated with any cancer. Additionally, neither the specification nor the art of have shown that an A5107G mutation of plexinB1 is associated with any type of cancer. Given that Stratton et al.

(Nature 2009 458: 719-724, IDS) teach that only a fraction of mutations get fixed into the DNA (see p. 720-1st col.), it would not be expected that this broad array mutations or an A5107G mutation of plexinB1 would be associated with breast or prostate cancer in absence of evidence thereo. Thus, in absence of further guidance or direction, one of skill in the art could not make and use the invention as broadly claimed without undue experimentation.

The specification provides insufficient guidance with regard to these issues and provides insufficient working examples which would provide guidance to one skilled in the art and insufficient evidence has been provided which would allow one of skill in the art to predict that the invention will function as contemplated or claimed with a reasonable expectation of success. For the above reasons, undue experimentation would be required to practice the claimed invention.

6. Claims 106, 109, 111 and 115-118 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a new matter rejection

The limitation of ". . . determining the expression of a plexinB1 nucleic acid in a . . . **cell lysate** in the presence of a test compound as compared with expression of the plexinB1 nucleic acid . . . **the cell lysate** in the absence of the test compound . . ." added in the amendment filed 7/11/2008 has no clear support in the specification and the claims as originally filed. A review of the specification as filed reveals support for determining the expression of a plexinB1 nucleic acid in a cell in the presence of a test compound. See ¶ 0146-0149 of the published application

and original claims 106 and 111. However support is not found for the test compound being in the presence of plexinB1 in a cell lysate. Thus, the subject matter claimed in claims 106, 109, 111 and 115-118 broadens the scope of the invention as originally disclosed in the specification.

7. No claims allowed.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to PETER J. REDDIG whose telephone number is (571)272-9031. The examiner can normally be reached on M-F 8:30 a.m.-5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Helms Larry can be reached on (571) 272-0832. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Peter J Reddig/
Primary Examiner, Art Unit 1642